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| 09/836,490      | 04/17/2001  | Bradley N. Maker     | M-9939 US           | 8530             |

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PARSONS HSUE & DE RUNTZ LLP  
595 MARKET STREET  
SUITE 1900  
SAN FRANCISCO, CA 94105

EXAMINER

PROCTOR, JASON SCOTT

ART UNIT PAPER NUMBER

2123

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/836,490 | <b>Applicant(s)</b><br>MAKER, BRADLEY N. |  |
|                              | <b>Examiner</b><br>Jason Proctor     | <b>Art Unit</b><br>2123                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-41 and 43-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-41 and 43-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/3/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1, 4-41, and 43-47 have been submitted for reconsideration in light of Applicants' remarks. Claims 1, 4-41, and 43-47 have been rejected.

#### ***35 U.S.C. § 112***

The previous rejections under 35 U.S.C. § 112, first and second paragraphs, have been withdrawn in light of Applicants' remarks. In particular, the following were critical to establishing the persuasiveness of Applicants' arguments.

It is intended that these claims not be drafted or interpreted in means-plus format under § 112, sixth paragraph. (page 11, first paragraph)

It is respectfully submitted that the claims are not somehow broader than the specification because they do not recite "the well known implicit method" or "the well known explicit method." The claims are not broader in scope than the specification. (page 14, second paragraph)

#### ***35 U.S.C. § 103***

The previous rejections under 35 U.S.C. § 103 have been withdrawn in light of Applicants' remarks. In particular, the following were critical to establishing the persuasiveness of Applicants' remarks.

LS-DYNA teaches switching from the explicit mode to the implicit mode for springback analysis, not the other way around. It does not teach the switch back to explicit or any switch from implicit to explicit. (page 16, lines 2-4)

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Claim 1 [...] requires at least one automatic switch from the implicit method to the explicit method (and one switch [in] the other direction). Such a switch is simply not taught by LS-DYNA, alone or in combination with Mancosu and Peterson. (page 16, first paragraph)

LS-DYNA does not, inherently or explicitly, teach a switch to an explicit method because the variables needed for such a switch to take place are not taught by LS-DYNA as being stored. (page 16, second paragraph)

These references [Peterson and Mancosu] are non-analogous art and each of them is very different from the others. Even though both pPeterson and Mancosu mention finite element techniques, many things in the world have been designed using finite element techniques. It is respectfully submitted that this is not a sufficient motivation to combine these very different references. Both Peterson and Mancuso are not particularly relevant to the techniques of implicit-explicit switching. In fact, neither reference mentions either implicit or explicit integration techniques. (page 18, third paragraph)

Applicants reiterate these arguments as applicable to each of the independent and dependent claims as appropriate.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. § 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1, 4-41, and 43-47 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106(II)(A) reads as follows:

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

Regarding claims 1 and 47, a finite element simulation is a mathematical method or algorithm and is therefore not statutory subject matter.

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Claims 1 and 47 do not produce a useful, concrete, and tangible result. Indeed, the language of claims 1 and 47 recite a modification to a mathematical method or algorithm. Where the admitted prior art is "a finite element simulation," claims 1 and 47 recite a method that does nothing but modify the prior art finite element simulation. The only "result" of this method is a modified method of performing a finite element simulation. That is, these claims recite a method of producing a modified mathematical method or algorithm. This is not a statutory result as explained in MPEP 2106(II)(A) and MPEP 2106 as a whole, and therefore these claims are nonstatutory. The claimed method is, by itself, merely a statement of the abstract idea to modify the prior art finite element simulation. This method is nonstatutory as explained in MPEP 2106.

In response, Applicants submit several examples of the practical application of finite element simulation. The Examiner agrees fully with Applicants that finite element simulation has, in a broad sense, a practical application. However, this is insufficient to define a statutory process under 35 U.S.C. § 101. As stated in MPEP 2106(II)(A),

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02.

The methods of claims 1 and 47, while *related to a technology that has, in a broad sense, a practical application*, do not accomplish a practical application because they do not produce a useful, concrete, and tangible result.

Regarding claims 14 and 25, the claimed invention is tangibly embodied but does not produce a useful, concrete, and tangible result as noted above.

In claim 14, “a computer readable storage medium storing one or more computer programs” is clearly an attempt to recite functional descriptive material that is structurally and functionally interrelated with a computer system. However, it is clear that the invention as a whole is computer software. That software is defined as performing the nonstatutory method of claim 1, and therefore the software does not perform a statutory method.

Claim 14 does not recite that the computer programs are actually executed, and therefore, claim 14 does not require that any switching take place during a finite element simulation. Indeed, claim 14 as a whole is nothing more than a claim for computer software that could perform a finite element simulation if it were executed. Where a computer program is merely stored with no requirement for its execution, this is nonstatutory descriptive material regardless of a computer readable storage medium.

When a computer-related apparatus claim is defined by the method performed by computer instructions, the most economical way of establishing the claim as statutory is often to require, by the claim language, that the method is performed and that the method itself is statutory.

Regarding claim 36, “a data signal embodied in a carrier wave” is not a proper tangible embodiment under 35 U.S.C. § 101. The claim is therefore directed to computer software not embodied in a tangible computer readable medium and is nonstatutory.

This claim is nonstatutory for falling into the category of natural phenomena. MPEP 2106(IV)(B)(1)(c) states:

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 112-14 (1853). However, a signal claim directed to

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a practical application of electromagnetic energy is statutory regardless of its transitory nature. See *O'Reilly*, 56 U.S. at 114-19; *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980).

Claim 36 recites the physical characteristics of a form of energy and is therefore nonstatutory. The exception for a practical application of electromagnetic energy does not apply in this case because the claim recites no such thing. The claim is strictly limited to describing the physical characteristics of a carrier wave. The claim recites no transmitters, no receivers, no method for employing the carrier wave to achieve a result, etc.

Claims rejected but not specifically mentioned stand rejected by virtue of their dependence and do not overcome the basis for rejecting the independent claims.

In responding to these rejections, the Examiner respectfully encourages Applicants to find factual support for their arguments in MPEP 2106. Unsupported arguments and hyperbole of the type submitted in the previous response will be unlikely to overcome the bases of these rejections.

***Potentially Allowable Subject Matter***

2. Claims 1, 4-41, and 43-47 appear to define potentially allowable subject matter as concerns 35 U.S.C. §§ 102, 103, and 112. The Examiner reserves a statement of reasons for allowance until the issues under 35 U.S.C. § 101 have been resolved.

*Conclusion*

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR)




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system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Proctor  
Examiner  
Art Unit 2123

jsp

  
Paul L. Rodriguez 3/2/06  
Primary Examiner  
Art Unit 2125